

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1 (currently amended): A high ~~High-viscous moulding material materials which~~ ~~are~~ suitable for ~~an~~ the extrusion blow moulding process and based on at least one thermoplastic ~~polymer polymers~~ selected from the group consisting of polyamides, polyesters, polyether esters, polyester amides and ~~or~~ mixtures thereof ~~comprising, having increased melt strength,~~ ~~characterized in that they contain in combination:~~

(a) nano-scale fillers in an amount of from 0.5 to 15 wt.-% per 100 parts by weight of the polymer matrix

(b) fibrous filling agents in amounts of from 5 to -30 wt.-% per 100 parts by weight of the polymer matrix and

(c) impact modifiers in amounts of from 3 to -12 wt.-% per 100 parts by weight of the polymer matrix, ~~and if required further additives (d),~~ wherein the moulding material has ~~materials have~~ a melt strength of being about at least 30 % higher than that of a similar moulding material materials comprising instead of the nano-scale fillers (a) typical ~~merely usual~~ mineral filler materials.

Claim 2 (currently amended): The moulding material ~~Moulding materials~~ according to claim 1, wherein ~~characterized in that~~ the nano-scale fillers ~~(a) comprise~~ are comprised in an amount of from 2 to -10 wt.-% per 100 parts by weight of the polymer matrix in the moulding material materials.

Claim 3 (currently amended): The moulding material ~~Moulding materials~~ according to claim 1 ~~or 2,~~ wherein ~~characterized in that~~ the nano-scale fillers ~~(a) comprise~~ are comprised in an amount of from 4 to -6 wt.-% per 100 parts by weight of the polymer matrix in the moulding material materials.

Claim 4 (currently amended): ~~The moulding material~~ ~~Moulding materials~~ according to ~~any one of claims claim 1 to 3, wherein characterized in that~~ the fibrous filling agents ~~(b)~~ ~~comprise are comprised in amounts of~~ from 5 to about -20 wt.-% per 100 parts by weight of the polymer matrix in the moulding ~~material~~ ~~materials~~.

Claim 5 (currently amended): ~~The moulding material~~ ~~Moulding materials~~ according to ~~any one of claims claim 1 to 4, wherein characterized in that~~ the fibrous filling agents ~~(b)~~ ~~comprise are comprised in amounts of~~ from 5 to about -15 wt.-% per 100 parts by weight in the moulding ~~material~~ ~~materials~~.

Claim 6 (currently amended): ~~The moulding material~~ ~~Moulding materials~~ according to ~~any one of claims claim 1 to 5, wherein characterized in that~~ the thermoplastic polymer is chosen from the group consisting of polyamides and ~~or~~ polyesters ~~are used as thermoplastic polymers, wherein polyethylene terephthalate or polybutylene terephthalate is especially preferred as polyester.~~

Claim 7 (currently amended): ~~The moulding material~~ ~~Moulding materials~~ according to ~~any one of claims claim 1 to 6, wherein characterized in that~~ the nano-scale fillers are selected from the group consisting of ~~the metals~~ oxides, ~~or semi-metals~~ metal of oxides, and ~~or~~ oxide hydrates.

Claim 8 (currently amended): ~~The moulding material~~ ~~Moulding materials~~ according to claim 7, ~~wherein characterized in that~~ the nano-scale fillers are selected from the group consisting of the oxides and oxide hydrates of an element selected from the group consisting of boron, aluminium, magnesium, calcium, gallium, indium, silicon, germanium, tin, titanium, zirconium, zinc, yttrium, iron ~~and~~ ~~or~~ talc.

Claim 9 (currently amended): ~~The moulding material~~ ~~Moulding materials~~ according to claim 8, ~~wherein characterized in that~~ the nano-scale fillers are selected from ~~the group consisting of~~ silicon dioxide and silicon dioxide hydrates.

Claim 10 (currently amended): ~~The moulding material~~ ~~Moulding materials~~ according to ~~any one of claims claim 1 to 9, wherein characterized in that~~ the polyamide moulding material in the polyamide matrix comprises a uniformly dispersed, layered mineral as filler having a layer thickness of 0.7 to 1.2 nm and an interlayer separation of the mineral layers of up to 5 nm prior to being incorporated in the polyamide matrix.

Claim 11 (currently amended): ~~The moulding material~~ ~~Moulding materials~~ according to ~~any one of preceding claims claim 1 to 10, comprising characterized in that a~~ the mineral uniformly dispersed in the polymer matrix ~~having has~~ a cation exchange capacity of from 0.5 to 2 meq/g mineral, ~~especially of from 0.7 to 0.8 meq/g mineral.~~

Claim 12 (currently amended): ~~The moulding material~~ ~~Moulding materials~~ according to ~~any one of preceding claims claim 1 to 11, comprising characterized in that a~~ the mineral is treated by an activating or modifying agent ~~selected~~ from the group ~~consisting of the~~ triazines, the ammonium salts of primary amines having at least 6 carbon atoms, ~~such as hexane amine, decane amine, dodecane amine, stearyl amine, hydrated fatty acid amines or~~ quarternary ammonium compounds, ammonium salts of  $\alpha$ -,  $\omega$ -amino acids having at least 6 carbon atoms, ~~and sulfonium salts and or~~ phosphonium salts.

Claim 13 (currently amended): ~~The moulding material~~ ~~Moulding materials~~ according to ~~any one of claims claim 1 to 12, wherein characterized in that~~ the nano-scale fillers are layered silicates ~~selected~~ from the group ~~consisting of~~ montmorillonite, saponite, beidellite, nontronite, hectorite, stevensite, vermiculite, illite, pyrosite, the group of the kaoline and serpentine minerals, double hydroxides, graphite, ~~and or~~ such fillers on basis of silicones, silica, ~~and or~~ silsesquioxanes, ~~wherein layered silicates are especially preferred.~~

Claim 14 (currently amended): ~~The moulding material~~ ~~Moulding materials~~ according to ~~any one of preceding claims claim 1 to 13, comprising characterized in that a~~ the mineral is

treated by an adhesion promoter and the adhesion promoter ~~comprises is comprised in an amount~~ of up to 2 wt.-% ~~of in~~ the moulding material per 100 parts by weight of the polymer matrix.

Claim 15 (currently amended): ~~The moulding material~~ ~~Moulding materials~~ according to ~~any one of preceding claims claim 1 to 11, wherein characterized in that~~ the (co)polyamides are polymerides selected from the group consisting of aliphatic C<sub>6</sub>-C<sub>12</sub> lactams and  $\omega$ -amino acids having 4 to 44 carbon atoms, ~~preferably 4 to 18 carbon atoms~~, or copolymers, obtainable from the polycondensation of at least one diamine from the group of the aliphatic diamines having 4 to 12 C atoms, the cycloaliphatic diamines having 7 to 22 C atoms and the aromatic diamines having 6 to 22 C atoms in combination with at least one dicarboxylic acid from the group of aliphatic dicarboxylic acids having 4 to 12 C atoms, cycloaliphatic dicarboxylic acids having 8 to 24 C atoms and aromatic dicarboxylic acids having 8 to 20 C atoms, ~~wherein also blends of the afore mentioned polymerides and/or polycondensates are suitable.~~

Claim 16 (currently amended): ~~The moulding material~~ ~~Moulding materials~~ according to claim 15, ~~wherein characterized in that~~ the  $\omega$ -amino acids and the lactams are selected from the group consisting of  $\epsilon$ -aminocaproic acid, 11-aminoundecanoic acid, 12-aminododecanoic acid,  $\epsilon$ -caprolactam, enanthlactam, and  $\omega$ -laurinlactam.

Claim 17 (currently amended): ~~The moulding material~~ ~~Moulding materials~~ according to claim 15, ~~wherein characterized in that~~ the diamines are selected from the group consisting of 2,2,2-4 or 2,4,4-trimethylhexamethylenediamin, 1,3- or 1,4-bis(aminomethyl)cyclohexane, bis(p-aminocyclohexyl)methane, m- or p-xylylenediamine, 1,4-diaminobutane, 1,6-diaminohexane, 1,10-diaminodecane, 1,12-diaminododecane, and cyclohexyldimethyleneamine, and the dicarboxylic acids are selected from the group consisting of succinic acid, glutaric acid, adipic acid, suberic acid, pimelic acid, suberic acid, azelaic acid, sebacic acid, dodecanedicarboxylic acid, 1,6-cyclo-hexanedicarboxylic acid, terephthalic acid, isophthalic acid, and naphthalenedicarboxylic acid.

Claim 18 (currently amended): ~~The moulding material~~ ~~Moulding materials~~ according to ~~any one of claims claim 1 to 6 or 15 to 17~~, wherein ~~characterized in that~~ the polyamides are ~~homopolyamides or copolyamides or amorphous polyamides~~ selected from the group consisting of polyamide 6, polyamide 46, polyamide 6 6, polyamide 11, polyamide 12, polyamide 12 12, polyamide 6 10, polyamide 6 12, polyamide 6 9, polyamide 12 T, polyamide 10 T, polyamide 12 I, polyamide 12 T/12, polyamide 10 T/12, polyamide 12 T/10 6, polyamide 10 T/10 6, polyamide 6/6 6, polyamide 6/6 12, polyamide 6/6 6/6 10, polyamide 6/6 6/12, polyamide 6/6 T, polyamide 6/6 I, polyamide 6T/66, polyamide 12/MACMI, polyamide 66/6I/6T, polyamide MXD6/6 and ~~or~~ mixtures, blends or alloys thereof.

Claim 19 (currently amended): ~~The moulding material~~ ~~Moulding materials~~ according to ~~any one of claims claim 1-18~~, wherein additional ~~characterized in that further~~ polymers from the group consisting of the polyesters, polyolefins, polycarbonates, and polyethylene vinyl alcohols are added in amounts of up to 30 wt.-% to the moulding materials.

Claim 20 (currently amended): ~~The moulding material~~ ~~Moulding materials~~ according to ~~any one of claims claim 1-19~~, comprising ~~characterized in that further~~ additives ~~(d)~~ selected from the group consisting of the UV and heat stabilizers, ~~the~~ antioxidant agents, ~~the~~ pigments, dyes, nucleation agents, crystallization accelerators, crystallization retardants, flow assistants, lubricants, release agents, flame retardants, and ~~as well as~~ agents improving the electrical conductivity, ~~are added to the moulding materials~~.

Claim 21 (currently amended): ~~The moulding material~~ ~~Moulding materials~~ according to ~~any one of claims claim 1-20~~, wherein ~~characterized in that~~ the fibrous filling agents are glass fibers, ~~especially E-glass fibers~~.

Claim 22 (currently amended): ~~The moulding material~~ ~~Moulding materials~~ according to ~~any one of preceding claims claim 1-21~~, wherein ~~the~~ ~~characterized in that~~ such impact modifiers are ~~on basis of~~ polyolefins ~~being~~ grafted by acrylic acid and maleic anhydride, ~~especially~~

~~ethylene oropylene rubbers (EPM), ethylene propylene diene rubbers (EPDM) or acrylate rubbers, are added to the polyamide moulding materials as impact modifiers.~~

Claim 23 (currently amended): A method for producing ~~the~~ moulding materials comprising the steps of ~~according to any one of claims 1-22, characterized in that the production of moulding materials is performed by~~ melting the polymers selected from the group consisting of polyamides, polyesters, polyether esters, polyester amides and mixtures thereof, and then compounding ~~the~~ nano-scale fillers in an amount of from 0.5 to 15 wt.-% per 100 parts by weight of the polymer matrix ~~(a)~~, the fibrous filling agents in amounts of from 5 to 30 wt.-% per 100 parts by weight of the polymer matrix ~~(b)~~ and ~~the~~ impact modifiers in amounts of from 3 to 12 wt.-% per 100 parts by weight of the polymer matrix ~~(c)~~ by an extrusion method to produce a high-viscous moulding material having a melt strength of about at least 30 % higher than that of a similar moulding material comprising instead of the nano-scale fillers typical mineral filler materials.

Claim 24 (currently amended): The method according to claim 23, ~~wherein characterized in that~~ the moulding materials are produced in a double screw extruder at temperatures of between 240°C ~~to and~~ 350°C.

Claim 25 (currently amended): ~~A~~ ~~The~~ method for producing moulding materials a high-viscous moulding material suitable for an extrusion blow moulding process and based on at least one thermoplastic polymer selected from the group consisting of polyamides, polyesters, polyether esters, polyester amides and mixtures thereof and including: (a) nano-scale fillers in an amount of from 0.5 to 15 wt.-% per 100 parts by weight of the polymer matrix (b) fibrous filling agents in amounts of from 5 to 30 wt.-% per 100 parts by weight of the polymer matrix and (c) impact modifiers in amounts of from 3 to 12 wt.-% per 100 parts by weight of the polymer matrix, wherein the moulding material has a melt strength of about at least 30 % higher than that of a similar moulding material comprising instead of the nano-scale fillers (a) typical mineral filler materials ~~according to any one of claims 1-22, being~~ comprising the steps of ~~performed~~ performing a ~~by~~ melt intercalation, wherein the thermoplastic, the nano-scale fillers,

the fibrous filling agents (b), the impact modifiers (c), ~~and if required the further additives (d)~~ are mixed at temperatures in the range of from 160 ~~to~~ -350°C and up to 30 wt.-% of a liquid, ~~especially water~~, is injected into the melt.

Claim 26 (currently amended): A method for producing a ~~Use of the moulding materials according to any one of claims 1-25 for the production of~~ moulded article ~~articles~~, hollow body ~~bodies~~, semi-finished product ~~products~~, plate ~~plates~~, or pipe ~~pipes~~ comprising the step of using a high-viscous moulding material suitable for an extrusion blow moulding process and based on at least one thermoplastic polymer selected from the group consisting of polyamides, polyesters, polyether esters, polyester amides and mixtures thereof:

(a) nano-scale fillers in an amount of from 0.5 to 15 wt.-% per 100 parts by weight of the polymer matrix

(b) fibrous filling agents in amounts of from 5 to 30 wt.-% per 100 parts by weight of the polymer matrix and

(c) impact modifiers in amounts of from 3 to 12 wt.-% per 100 parts by weight of the polymer matrix, wherein the moulding material has a melt strength of about at least 30 % higher than that of a similar moulding material comprising instead of the nano-scale fillers (a) typical mineral filler materials.

Claim 27 (currently amended): The method ~~Use~~ according to claim 26, wherein ~~characterized in that~~ the hollow body ~~bodies~~ is a ~~are~~ bottle ~~bottles~~.

Claim 28 (currently amended): A moulded ~~Moulded~~ article comprising a high-viscous moulding material suitable for an extrusion blow moulding process and based on at least one thermoplastic polymer selected from the group consisting of polyamides, polyesters, polyether esters, polyester amides and mixtures thereof:

(a) nano-scale fillers in an amount of from 0.5 to 15 wt.-% per 100 parts by weight of the polymer matrix

(b) fibrous filling agents in amounts of from 5 to 30 wt.-% per 100 parts by weight of the polymer matrix and

(c) impact modifiers in amounts of from 3 to 12 wt.-% per 100 parts by weight of the polymer matrix, wherein the moulding material has a melt strength of about at least 30 % higher than that of a similar moulding material comprising instead of the nano-scale fillers (a) typical mineral filler materials, ~~obtainable using moulding materials according to any one of claims 1-22.~~

Claim 29 (currently amended): The method~~Method~~ for producing a moulded article~~articles~~ according to claim 27 comprising the use of a~~in one or more~~ step chosen from the group consisting of~~steps by~~ coextrusion, extrusion blow moulding, compression moulding and~~or~~ sheating methods.

Claim 30 (new): The moulding material according to claim 6, wherein the polyester is chosen from the group consisting of polyethylene terephthalate and polybutylene terephthalate.

Claim 31 (new): The moulding material according to claim 1, comprising a mineral uniformly dispersed in the polymer matrix having a cation exchange capacity of from 0.7 to 0.8 meq/g mineral.

Claim 32 (new): The moulding material according to claim 12, wherein the ammonium salts of primary amines having at least 6 carbon atoms are selected from the group consisting of hexane amine, decane amine, dodecane amine, stearyl amine, and hydrated fatty acid amines.

Claim 33 (new): The moulding material according to claim 21, wherein the glass fibers are E glass fibers.

Claim 34 (new): The moulding material of claim 22, wherein the polyolefins are grafted by a rubber selected from the group consisting of ethylene-propylene rubbers (EPM), ethylene-propylene-diene rubbers (EPDM) and acrylate rubbers.



Claim 35 (new): The method for producing moulding material according to claim 25, wherein the liquid comprises water.